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The Story of the Motion Picture

65 B. C. to 1920 A. D.

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THE STORY OF THE MOTION PICTURE

65 B. C. TO 1920 A. D.

BY

BEN J. LUBSCHEZ

REELAND PUBLISHING COMPANY, INC.
727 Seventh Avenue, New York City
1920

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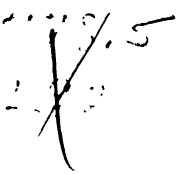

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PREFACE

There are nearly 30,000 theatres showing motion pictures in the United States; these theatres are attended by 13,000,000 people daily; these people spend more than 2,000,000 dollars each day in admission fees. Thus has the motion picture risen commercially to rank as the fifth largest industry in the country. All of this commercial development has taken place in less than twenty-five years and has parallelled the artistic and scientific development of the picture and its showing as we know it today.

But altho the motion picture in its present form is a mere infant, the idea upon which it depends fundamentally was known in 65 B. C. Between 65 B. C. and 1920 A. D. is a story full of interest and romance. Henry V. Hopwood's "Living Pictures," Colin N. Bennett's "Handbook of Kinematography," Homer Croy's "How Motion Pictures Are Made" and other books—to all of which the author hereby acknowledges his debt—tell parts of this story; often, however, leaving out important events and often encumbered

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with minute mechanical details of no interest to the layman, for with these books history is more or less incidental. This little book, on the other hand, attempts to give all the principal facts in the history of the motion picture, gathered from many sources and told in simple language and proper sequence. Here and there, especially as pertaining to the future, have been added personal opinions and convictions.

B. J. L.

New York, N. Y.
August, 1920.

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INTRODUCTORY

WHAT honor we might give him as a benefactor to the human race, if we could only trace to one man the fundamental invention of the moving picture! For the moving picture is not only the most popular amusement of the day, but it has brought the essence of good literature and good drama to millions to whom literature and drama were unknown and undreamed of worlds; it has brought the farthest corners of the earth to our very feet; thus bringing at least some of the advantages of reading and travel to those who would never have come in the smallest contact with such advantages. With all this it has furnished cheap, innocent, wholesome pastime and recreation for those who could not get these in other ways.

But no one man invented the moving picture. Altho, as we know it today, its development has been rapid and almost spectacular,—the first public exhibition of a rather crude form of the present moving picture having taken place as recently as 1894,—the moving picture of today is a

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composite of numerous discoveries and inventions some of which date back to 65 B. C. There are many tragic incidents in the evolution of the moving picture or "living picture" as the early workers called it: the man who came within a short step of combining the moving picture with the magic lantern or stereoptican so as to project the illusion of motion on a screen, completed his experiments after he became totally blind; and as Henry Vaux Hopwood has said of this Joseph Antoine Ferdinand Plateau, "there is a magnificence in the idea of this blind man carrying on his work, sowing the seeds of pleasure to thousands in future generations by means of this sense of which he himself was totally deprived!" Then there is the poor clergyman who perfected celluloid photographic film and who died in poverty, leaving his widow to fight, with the assistance of interested companies, the usurpers of his invention. Altho with no thought of the moving picture when first made, this celluloid film, on account of its flexibility and portability, is the most important thing to make the present-day presentation of moving pictures possible. Finally, there is the man who invented the projecting machine now in use in practi-

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cally all of its essentials, and who was the first to show moving pictures as they are now shown, living practically unknown and in obscurity, the credit for his invention generally given to another because he sold his rights in it for $2500, probably less than five cents royalty on every machine depending on his original ideas in use today!

Strange and romantic has been and still is, the story of the motion picture. It has marched on and on, and has become daily a more important element of our lives. A recent issue of *The Philadelphia Record* contained the following:

"There seems to be no stopping the triumphant march of the movie stars. Not long ago we read that Devonshire House, the famous rendezvous of the Whigs in London, had fallen before the cinema. The Alhambra and the Empire, famous music halls, are to go too. England and the Continent appear to be as wild for the screen as we are here. All doors are opening to it. Not long ago the conservative Vatican sanctioned the picturing of an important religious function. Great are the movies!"

Yet in 1897 Mr. C. M. Hepworth, the English inventor, said: "That the Kine-

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matograph has contributed much to the gaiety of nations can hardly be denied, but that it will continue to do so to anything like the same extent for much longer is most improbable." A year or two later Mr. Edison in speaking of the possible development of his early idea of combining the phonograph and the moving picture said: "I believe that in coming years, by my own work and that of Muybridge, Marey and others who will doubtless enter the field, grand opera can be given at the Metropolitan Opera House in New York without any material change from the original and with artists and musicians long since dead." In the last chapter of "How Motion Pictures Are Made," Mr. Homer Croy prophecies a future for the motion picture which is so all embracing that one almost hopes it won't come true! Of all things on earth perhaps the most difficult to prophecy about is the future of the motion picture. The span from the wonder stage to the commonplace in motion pictures is usually but the matter of a few days. A great novelty appears today, within a week the street urchins in the small town can tell you all about it. That Mr. Hepworth's pessimistic prophecy was quite un-

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warranted we can all see now. From what has already been done we must concede that Mr. Edison's prediction is neither far-fetched nor unreasonable. Considering the development of the last twenty-five years from an uncouth scientific curiosity and toy to what it is today, we are almost ready to believe Mr. Croy's picture of the future when the motion picture will be the mainstay of our educational system, of our entertainment and of the records of our daily lives!

But it is extremely hazardous to venture far into the future of the motion picture without proving for yourself "that a prophet is a fool." Mechanically, the appurtenances of the motion picture will without doubt develop rapidly. Undreamed of nicety and efficiency in the camera, the projection apparatus and the screen will be commonplace in a few years, perhaps months. Perfected talking pictures and pictures in natural colors will be with us ere we know it. We shall wake up some morning to find the black-and-white picture scrapped, at least for public exhibition, on account of the picture in natural colors.

There is still much room for improvement in the settings for pictures. Here

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the film drama has a tremendous advantage over the spoken drama. Film is so portable that it is a simple matter to present to a world-wide audience, the story in its proper setting, whatever part of the world that may be. In artificial settings possibilities have been unfulfilled, tho we have advanced beyond the waving, flimsy canvas sets of a few years ago. A floor of quite obvious wooden boards with equally obvious painted spots, is not very convincing as marble pavement; a dome made of muslin with tacks on seams and ribs conspicuously apparent, is not very impressive. Yet both of these were details of one of the greatest of recent pictures. It is true that the camera tells the truth without mercy, it sometimes exaggerates with merciless vengeance, but it is not recalcitrant, and these very qualities often make it a wonderful magician! Properly lighted and photographed, plaster and even thick kalsomine will pass for marble without detection; tinsel for gold; painted wood or plaster for bronze. A masterly combination of these two magic agents, light and photography, will produce almost any illusion. The moving picture seems to offer an opportunity to some versatile genius who is master of scene

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painting, lighting and photography, as well as versed in architecture. Perhaps a co-operating group of less versatile masters are easier found. They probably will be found in the onward stride.

The usurpation of reading and the legitimate drama by the motion picture is probably only temporary. It will likely permanently displace cheap drama and cheap literature because it offers a much better quality substitute at the same price. At the same time, especially as the picture improves in quality, it will bring the fine drama and opera of the metropolitan center to the small community which could not afford to bring that drama or opera to itself, and the great majority of the citizens of which could never go to the metropolitan performances. It will also bring cheaply and quickly the art of one country to another. Audiences of thousands will become audiences of millions by the aid of the motion picture. The short presentations of great literature in the universal language of pictures will undoubtedly create an interest in that literature among those who otherwise would remain strangers to it, rather than displace that literature among those who would ordinarily come in contact with it.

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In science and education the field of the motion picture has barely been scratched. We have all seen the wonderful analyses of growth and motion. Some taken at comparatively long intervals and then shown in quick succession, as in illustrating the growth of a flower; and others taken in very rapid succession and shown at a comparatively slow speed, as in analyzing the movements of a running animal. What may be done in this line is hard to conjecture.

We have but to look at the amazing record of the past and more particularly of the last quarter of a century to see how futile it is to predict for even the next decade.

Whether or no we agree with anyone's speculations as to how great the future development of the motion picture may be, or how much it will contribute to the enjoyment of living, we all know how important it is to us today; how much it means to us, whether we take it as education, recreation, or dissipation; and it seems quite worth while to inquire into its origin and history, a story as strange as its marvelous growth.

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FIRST PRINCIPLES

THE fundamental idea underlying the illusion of motion in pictures is persistence of vision, simply the fact that the image of an object, or the sensation of seeing an object, remains or persists for a fraction of a second after the object is removed. This may be demonstrated by everyday phenomena. The blades of an electric fan appear as a complete disc, when in motion. A rock or similar object whirled on the end of a string, will appear as a circle. Why? Because the image of the fan blade or rock in each successive position persists while the fan-blade or rock moves into the next position, the result being a blending of successive images into one image, a circle. The same thing would happen if the fan blade or rock should stop at intervals in rapid succession. The persistence of vision, which lasts from 1/20 to 1/16 of a second, would cause the image of one position to blend with the image of the next, and the interval of rest, if less than 1/16 or 1/20 of a second, would not be noticed. The phe-

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nomenon of persistence of vision was commented on by Lucretius in 65 B. C. Ptolemy in A. D. 130 actually demonstrated this natural phenomenon by means of revolving spots, yet the use of this persistence to blend pictures of successive positions of a moving object in order to furnish the illusion of motion, did not occur until about 1825, and then only in a rudimentary way.

The development of the moving picture may now be broadly traced. The ancestor of the animated cartoon of today was the first form of moving picture and was used in a toy. The toy passed thru several stages, all crude and all depending on drawn images. Finally the principle of these toys was combined with that of the stereoptican so that the audience was increased from one, the manipulator of the toy, to as many as could view the projection on a screen. Considerably later, with the advent and development of photography, the images used were produced by photography, but the method of presentation again limited the audience to one and it was not until the early nineties, with the development of instantaneous photography and celluloid film, that the recognizable parent of the modern picture came into

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being. With this broad outline we have come to the real beginning of our story, the evolution of the modern moving picture from the early toy and curiosity stage to its present position in our life.

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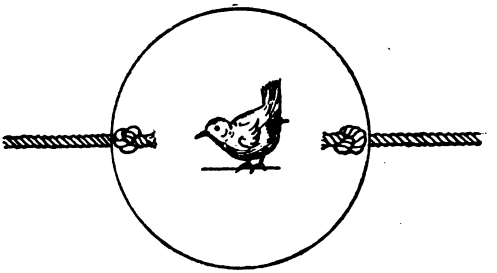

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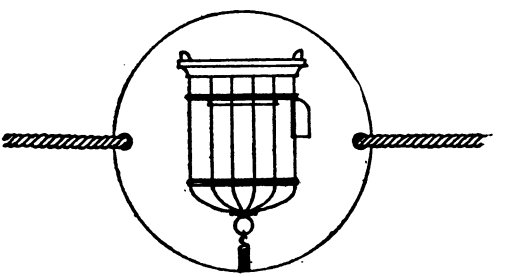

BACK

THE THAUMATROPE

Invented by Dr. Finton in 1825.

See Page 13

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EARLY EXPERIMENTS

IN 1825 there appeared in England a half-penny toy called the "Thaumatrope." The early forms of moving picture apparatus, whether the simplest toys or the more serious machines, always had high-sounding and classic names. The Thaumatrope was merely a card with the picture of one object, like a bird, printed on the face; and another object, like a cage, printed on the back. Thru the center of the card was a string by means of the ends of which, the card would be whirled end for end, bringing the pictures of the two objects before the eye in quick succession and furnishing, thru the persistence of each image, the illusion of a composite of both; When one picture is a bird and the other a cage, the bird seemingly enters the cage. This toy proved so popular that a warm controversy arose as to who was the inventor. A Doctor Paris and a Doctor Finton each claimed the credit, Dr. Finton's claims now being more generally recognized, having in fact been substantiated.

In the early thirties of the nineteenth century, following some optical experi-

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ments by Dr. Roget, Dr. Faraday and others, there was invented independently and almost simultaneously by Dr. Plateau of Ghent and Dr. Stampfer of Vienna, a disc contrivance showing the illusion of motion in pictures and depending on persistence of vision for effect. Plateau called his instrument the Phenakistoscope, and Stampfer called his, the Stroboscope. As Plateau carried his experiments much further than Stampfer, we shall ignore the Stroboscope. The Phenakistoscope consisted simply of two circular discs revolving on a common shaft. The front disc had several phases of a moving object drawn or painted on it, the different drawings being arranged radially near the outer edge. Behind this disc was a larger one with radial slots in it corresponding in number and position with the drawings on the front disc. The Phenakistoscope was held before a mirror and the discs rotated, the observer watching the reflected images of the front disc thru the slots of the back one, and seeing for the first time the illusion of motion in pictures! Besides being pioneer in showing this illusion, the Phenakistoscope established in its crude form, the principal of the intermittent shutter, used to this day. As the slots in the disc

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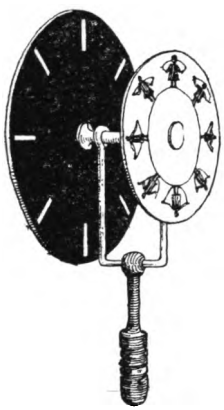
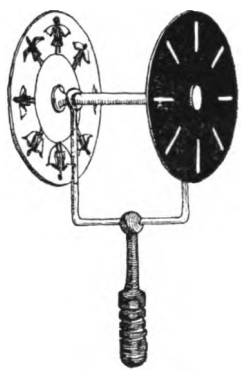


EARLY FORM
USED WITH MIRROR



LATER FORM
DIRECT VIEW.

THE PHENAKISTOSCOPE

Invented by Dr. Plateau about 1833

One of the most important steps in the evolution of the motion picture. See pages 14 and 16.

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passed before the eye, the space between the slots shut off the light and pictures while they were changing positions, the persistence of one image connecting it to the next. This is one of the fundamental principles upon which both the presentation and taking of modern photographic moving pictures depend. Plateau who was gradually growing blind kept up his experiments, under his direction when he himself was disabled, and in 1849 when totally blind produced with his Phenakistoscope, the *"Diable Soufflant"* (Devil Blowing up Fire). This instrument was somewhat larger than the original Phenakistoscope, the pictures of the different phases of motion were painted on a transparent disc, and artificial light was made to shine thru it. This disc revolved in front of a screen with an opening in it so that all the radially arranged pictures except the vertical one to be seen, were shut off. A number of people might sit in front of the slotted wheel and watch the pictures. The apparatus only needed the ordinary condensing and objective lenses of the magic lantern to present the pictures on a screen. But this far Plateau did not seem destined to go. His accomplishments, however, certainly entitle him to be always honored as

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one of the grandfathers of the moving picture.

In 1851-53, Franz Uchatius, an Austrian lieutenant, remodeled the Phenakistoscope for screen projection and called his machine "The Lantern Wheel of Life." The transparent disc remained stationary; the source of light rotated behind each picture in turn; the slotted disc was replaced by a stationary one carrying a number of objective lenses, one in front of each picture, and all arranged to focus on the same spot of the screen; the illuminant was the only thing that moved. This was the finishing touch that Plateau's invention needed.

Some twelve months after Plateau's invention of the Phenakistoscope, W. G. Horner in 1834 described the Daedaleum, a cylindrical derivation of the Phenakistoscope, later called the "Wheel of Life," and "Zoetrope." With this no mirror was needed as with Plateau's device. It consisted of a hollow cylinder which could be rotated on its axis. The various phases of a moving object were depicted around the lower edge of the inside of the cylinder, and the vertical slots were cut above the images near the upper edge of the cylinder. Looking thru the slots at the pic-

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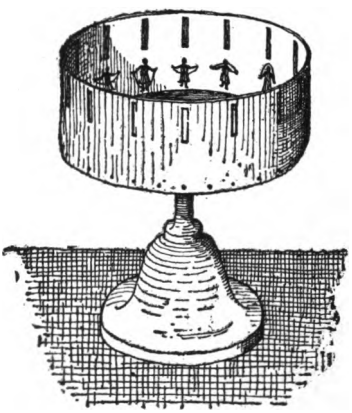

THE ZOETROPE

A Cylindrical Form of the Phenakistoscope

Described as "The Daedaleum" by W. G. Horner in 1834. Later models were patented by Desvignes in 1860 and by W. F. Lincoln in 1867. See pages 17 and 18.

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tures while revolving the cylinder, produced the illusion. For some reason this device was not popularly introduced until 1860, and it is still on the market as a toy. Various forms of it were patented in the United States, England and France. Rather serious models of it were patented by Desvignes in France in 1860, and by W. F. Lincoln of Providence, R. I. in 1867.

In all devices having narrow slots for observation of the pictures, more or less distortion resulted as the picture viewed passed before the slot. If the slot moved in the same direction with the picture, as in the Phenakistoscope, the picture appeared elongated; if it travelled in opposite direction from the picture, as in the Zoetrope, the picture appeared compressed. Plateau recognized this shortcoming and compensated for the resultant distortion by distorting his original diagrams in the opposite direction, the two distortions neutralizing each other and the result being normal. In 1869, however, Clerk-Maxwell remedied this defect in the Zoetrope by substituting for the slots, lenses so arranged as to form the images of the moving pictures at the center of the revolving cylinder of the Zoetrope,

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thus the images would be apparently stationary. In 1877 Reynaud attained the same result in a simpler way and his device, which he called the Praxinoscope, attained a popularity which lasted many years. In the Praxinoscope both the slots and lenses were done away with: around a drum in the center of the cylinder were arranged little sloping mirrors placed half-way between the rim of the outer cylinder and its center. The reflected images of the different phases in the mirrors therefore appeared at the center of the revolving cylinder just as in Clerk-Maxwell's device. Altho by the ingenious use of mirrors the Praxinoscope was combined with the stereoptican and ultimately was used with actual photographs as one of the immediate predecessors of the film machines, it is only a variation of the Zoetrope and would be of little interest except for the fact that in it, and its prototype by Clerk-Maxwell, was recognized the fundamental principle that, to avoid distortion and blurring, the image viewed must be momentarily at rest or apparently so. This principle was independently discovered several years earlier by Dr. Coleman Sellers of Philadelphia in an ingenious photographic machine which he called

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the Kinematoscope, and which will be taken up later.

Many interesting devices employing one or more of the principles of modern moving pictures appeared in the sixties and early seventies. Among them may be mentioned a painting of a human face with an opening in place of the actual features,. Behind this opening rotated a disc with various phases of a grimace painted on it. The whole picture was dark while the disc rotated and the representation of a different phase came into position, then there was a flash of light; and so on, till all the phases were shown. Persistence of vision connected the various phases over the dark periods. Altho this device, credited to a Mr. Beale, was only of remote relation to the modern motion picture, it used several of the now recognized vital principles. In 1871 appeared the Ross "Wheel of Life," an adaptation of the Phenakistoscope, which could be used in place of the ordinary magic lantern slide carrier for projection. Several variations of this device appeared, some quite ingenious, in fact an earlier one patented in the United States in 1869 by A. B. Brown employed the forerunner of the modern intermittent shutter mechanism

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on the picture disc. The writer well recalls the sensation produced by one of these magic lantern devices in the late eighties, when there was shown the picture of a snoring sleeper with a tiny mouse scampering into the open mouth of the snorer!—a close relative of the modern animated cartoon. Another sensation of the times which the writer remembers having witnessed with a great deal of awe was the "dancing skeleton." This was produced by means of the magic lantern device just described, but the picture disc instead of being a painted transparency was a stencil-like affair, that is, the illustrations of the different positions of the dancing skeleton were cut thru in thin metal; the light shining thru formed a brilliant image on a black background, and the dance proceeded in a most ghastly and convincing manner! Linnett, in 1868, patented the Kineograph, a series of pictures of different phases of motion, bound together in a little booklet, the pictures being presented to the eye in rapid succession by drawing the thumb over the edges of the leaves. This device was repatented and gained a great deal of popularity in the late nineties as the Pocket Kinetoscope, when the pictures were greatly increased

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in number and photographs were used. Several models of the book device were patented in England, France and the United States.

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EARLY PHOTOGRAPHIC EXPERIMENTS

PARALLEL with the development of presenting the illusion of motion in pictures, was the study of the analysis of motion. It is this study which ultimately led, thru photography and in combination with the experiments in presentation of the optical illusion of motion in pictures, to the moving picture as we know it today. As early as 1852 a Mr. Wenham obtained a series of posed photographs showing the successive positions of a man working. These were later combined and shown by means of the Phenakistoscope with, of course, the unavoidable distortion and blur. The workman who posed for the pictures viewed the result and very indignantly asserted that he never worked like that! From now on, devices for taking and presenting photographs of motion phases were constantly appearing.

The most interesting of the early experiments, perhaps, were those of Dr. Sellers mentioned before. Most interesting because they were developed in such a scholarly way and led to the discovery

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of many of the essential principles involved. Dr. Sellers was a manufacturer of machines and machine tools in Philadelphia. He was disappointed in the wood-cut as a method of illustrating the machines he manufactured, and was vitally interested in photography from its very beginnings. The photograph was better than the wood-cut for his purpose, but still it was not realistic enough, so he turned to the stereoscope; this was a great step towards his goal, it gave relief and separated the planes in his pictures. Only one thing was left: if he could only show the levers and wheels apparently in motion! To this Dr. Sellers turned his thoughts, and with marked success as we shall see. He obtained posed photographs of his two sons, Coleman, Jr. and Horace Wells,—Coleman, Jr. busily driving a nail into a box and Horace watching his elder brother from the comfort of a rocking chair. In making these posed photographs with the old wet-plate process, the plates would often dry and become useless between exposures so Dr. Sellers perfected the glycerine bath which kept his plate moist for a comparatively long time and ultimately led to the manufacture of the so-called dry plate in use now, but all this was only

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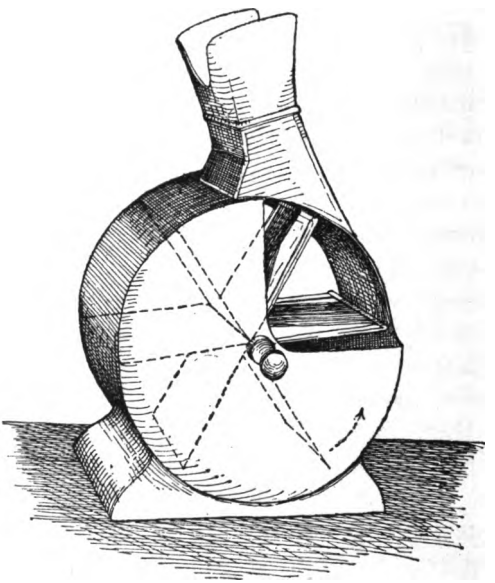

THE KINEMATOSCOPE

Invented by Dr. Coleman Sellers in 1861

The first machine to recognize practically all the vital principles of the motion picture. See pages 24 to 28.

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a by-product. The next step, after having the photographs of several phases of motion, was to have a way of presenting them in combination so as to show the illusion of apparent motion. Dr. Sellers tried devices on the order of the Zoetrope but both the blur and distortion were objectionable. He soon diagnosed the trouble and discovered probably the most important principle in the showing of motion pictures: that the picture of the series which was at the moment being viewed should be at rest during that moment, in other words, that the movement of the pictures themselves should be intermittent rather than continuous. In 1861 Dr. Sellers patented his Kinematoscope, the first use of "kinema" in this connection. It is interesting to note that this machine did not really employ intermittent motion, but a peculiarly arranged continuous forward motion which was apparently intermittent. The Kinematoscope was a paddle-wheel arrangement with the different photographs mounted on the surface of the paddles. The eyepiece was really the eyepiece of a stereoscope, and the photographs were the familiar double stereoscopic kind. By means of a knob, the pictures were turned towards the eyepiece, the eye grad-

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ually adjusting its focus to the advancing picture so that the effect was the same as if it were at rest. At a certain point one picture suddenly left the field of view and the next appeared. Dr. Sellers obtained really remarkable results with the use of but few phases of motion, usually only three. Dr. Sellers in his patent application stated for the first time the fundamental requirements of showing the illusion of motion in pictures, "that it is absolutely necessary that the picture should be at rest during the moment of vision" and that there must be shown "a succession of pictures (taken in different positions of the moving object) with sufficient rapidity to insure the image of one being retained on the retina until the next is brought into view." Three years after Dr. Sellers' patent, Ducos obtained a French patent and also clearly stated the principle of persistence of vision involved. Dr. Sellers also provided in his patent application for another device to carry many more pictures than was possible with the paddle-wheel arrangement, and this was undoubtedly the prototype of the machines in use in amusement places throughout the country until quite recent years, machines with lens eyepieces and with the photo-

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graphs turned or changed by motor or clock-work.

From the time of Dr. Sellers' work in the sixties until the early seventies there was little progress. In 1872, a controversy which had no connection with the moving picture culminated in experiments and results which were of the greatest epoch-making importance in the history of the photographic motion picture. Some horsemen in California argued heatedly as to whether or no a racing horse at any moment had all of its feet off the ground simultaneously. In the argument, rather as an innocent bystander, was an Englishman employed in United States government survey work, Edward Muybridge by name, and a photographic enthusiast. The horsemen appealed to Muybridge to make photographs of racing horses so that their motion might be carefully studied at leisure. Muybridge proceeded with the photographs but soon found that ordinary methods would get him nowhere. He conceived the idea of taking the pictures with a series of cameras set close together and with their shutters set off in close succession. There were set up twenty-four cameras in a row, with threads attached to the shutters and stretched from the shut-

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ters across the race-track; as the horse ran by, the threads were broken, the shutters released, and the plates in the cameras consequently exposed. The first pictures were blurred badly and of little use, but Muybridge persisted and by using a white horse, illuminated by brilliant sunlight, against a black painted fence, he succeeded in shortening the exposures until perfectly sharp images were produced. The results were surprising, and proved that the horse did have all its feet off the ground at one moment. The mere settlement of the argument, however, was not enough for Muybridge. He was too enthused over the accurate analysis of motion to stop. With the liberal financial assistance and encouragement of Governor Leland Stanford, he continued his experiments. It is interesting to note that in those early days Muybridge succeeded in developing instantaneous photography to a point which has not yet been surpassed as to results, altho methods have been much simplified. Having succeeded so admirably in taking his pictures and analyzing motion he turned to the problem of projecting the pictures on a screen and recreating the motion. The machine he invented was based on the principle of Plateau's

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Phenakistoscope combined with condensing and objective lenses, really a simplification and improvement of Uchatius' "Lantern Wheel of Life," and was called by the formidable name of "Zoopraxoscope." Except for its use of superior pictures, this machine was no great advance in optical results. The results of Muybridge's experiments were published in 1878 and created a sensation in both America and Europe. In 1881, he appeared before many eminent scientists of France in Dr. E. J. Marey's laboratory. Dr. Marey recognized the one great defect in Muybridge's photographs; altho they were intended to be viewed in combination, from a single point of view, they were really made in twenty-four cameras from twenty-four slightly different points of view. In 1882, therefore, Dr. Marey put forth his so-called "Photographic Gun" by means of which a number of photographs could be taken in rapid succession with a single lens and from the one viewpoint. Dr. Marey's device was modeled after the "Photographic Revolver" invented by M. Janssen in 1874. It was so called on account of its resemblance to a large revolver. The lens was at the muzzle, the barrel was really the camera,

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the revolving cylinder carried a disc-shaped sensitized plate, the trigger rotated this plate and simultaneously worked the lens shutter. With his "Photographic Revolver," M. Janssen succeeded in taking, in 72 seconds, 48 successive photographs of a transit of Venus across the sun's disc; certainly a great achievement for those days. Marey named his process, "Chronophotography," a name still used in the taking of motion pictures.

On his return to America, Muybridge continued his experiments under the auspices of the University of Pennsylvania. From the photography of moving animals he turned to the portrayal of college athletes in action, with ever increasing success. In 1887, in conjunction with Dr. Reichert of the University of Pennsylvania, he succeeded in getting a series of photographs showing the beating of a dog's heart, the first known use of instantaneous and motion photography in medical research. In 1893, Muybridge exhibited his pictures and his projection machine in Zoopraxical Hall at the Columbian or Chicago Exposition, and there he received the certificate of honor in recognition of his work. Muybridge's photography was far better than his method of presenting the illusion of

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motion with his "Zoopraxiscope," but crude, jerky and eye-irritating as his motion pictures were, they were really motion pictures made by photography from real moving objects and brought much nearer the present point of development than anyone had succeeded in bringing them before. Mr. Bernard E. Jones has said: "There is no doubt that the real inventor of motion photographs was Edward Muybridge . . ." If by motion photographs are meant photographs analyzing motion, this statement is perhaps true, but of moving pictures there was no one inventor and Muybridge's work, to which he dedicated many years of his life, is only a step in the right direction.

It had long been recognized that one serious limitation in the projection of the motion picture was the glass plate, with it the number of phases were necessarily few and the successive changes of pictures were too slow. The idea of using an endless band of pictures instead of a disc with pictures on the edge, was an early one. The scheme being to use a chain-like series of frames carrying glass transparencies, but this, though furnishing the germ of the right idea, did not prove very practical in itself and was entirely useless as far as

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taking the successive pictures was concerned. At this time, in the late eighties, every idea and principle needed for the taking and projection of the moving picture, had been invented or discovered by some one and, in some crude form, had been used on one or more of the elaborately named devices brought forth, but the goal seemed yet far away, something essential was certainly lacking. This vital necessity was a light, flexible medium for the pictures, instead of glass. Several discovered what the necessity was, but to Thomas A. Edison belongs the credit of first supplying it. Mr. Edison first made a strip of flexible collodion film to carry the photographic emulsion. This film was rough, uneven in thickness and far from satisfactory, but a long step towards the goal. It led to the invention of the Edison Kinetoscope which will soon be described in its chronological place. Without any thought of the motion picture, but only with the realization that to popularize photography, some light, easily portable and non-breakable substitute for glass plates was needed, George Eastman, a small manufacturer of photographic dry plates at this time, was hard at work trying to find this substitute. He experimented with

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gelatine and soon discovered that gelatine must have some support, by itself it would not answer. Paper was tried for this, and used for some time. Paper photographic film was fairly successful for ordinary photography. It was tried by motion picture experimenters but proved unsatisfactory, mainly because under the magnification of projection it showed too much grain; also to obtain enough transparency, oiling had to be resorted to.

In 1889 the Reverend Dr. Hannibal Goodwin hit upon the idea of celluloid for carrying the photographic emulsion. Celluloid was light, transparent and flexible. Its flexibility, which has proved the greatest factor of its use in motion picture photography and in fact has been the greatest factor in the development of the ordinary folding pocket camera, was considered a shortcoming in its early days. Dr. Goodwin's patent was not granted for many years. In the meantime, soon after Dr. Goodwin's announcement, however, Mr. Eastman began the manufacture and marketing of celluloid, photographic film. A long-fought legal battle now ensued for the rights of invention. Dr. Goodwin did not live to see his claims substantiated. It was only a few years ago that Mrs. Good-

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win, assisted by a rival of the Eastman Company who had bought a major interest in the claim, won the long pending suit. Dr. Goodwin's patent was upheld and a large sum was ordered paid in settlement of accrued royalties.

Celluloid film proved popular for ordinary photography and, in the popularization of it, has certainly more than fulfilled any hope that Mr. Eastman may have cherished. The enthusiasm with which it was hailed by experimenters in motion pictures cannot be described, however, an enthusiasm totally unexpected and unforeseen by those responsible for the product. With celluloid film in use, the history of moving pictures becomes crowded with events and progress is spectacular.

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LATER EXPERIMENTS

AFTER Mr. Edison's manufacture of his collodion film, he invented a machine in which to use it for the taking of moving pictures by photography; and after he succeeded in taking the pictures, he proceeded to develop the machine for viewing them. This machine he called the Kinetoscope. The pictures could be viewed by only one person at a time, thru a magnifying eyepiece. The film was an endless loop and contained a far greater number of phases of the moving object than had heretofore been possible to present, but the pictures were very small and even with magnification were inadequate. The Kinetoscope was first publically shown at the Brooklyn Institute in May, 1893. It was an exceedingly ingenious machine and easily might have been developed into a projecting model for throwing the picture on a screen. For some reason, perhaps on account of his intense interest in the phonograph, Edison did not give this machine the necessary thought and time, and thereby lost the opportunity of being the pioneer of the mod-

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ern moving picture. The Kinetoscope acted as a great spur to the activities of other inventors, however. It was exhibited at the Chicago Exposition alongside Muybridge's Zoopraxiscope, and, being easier on the eyes and more interesting on account of the comparatively long film with its many times greater number of images, it drew the crowds, and the doom of the Zoopraxiscope, except as an incident in the history of moving pictures, was sounded. In England, somewhat earlier than Edison, in 1889, or 1890, Messrs. W. Friese-Greene and M. Evans patented a machine using a loop of film, and only a few months later Messrs. Donisthrope and Crofts invented one using a strip of film winding from one spool to another, the first machine to use the prototype of the present day reel rather than the endless belt. In both of these machines the film was moved and controlled by friction rollers, while in the Kinetoscope the film was perforated on the edges and was moved and controlled by sprocket wheels whose points fitted into the perforations, thus Mr. Edison gave us the idea which is now being used in all taking and projecting machines.

It was at the Chicago Exposition that two men from London, in the amusement

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business, saw the Kinetoscope, grasped its value to them and bought a machine to take home with them. In London they took the machine to a skilled mechanic, Robert Paul by name, and asked him to duplicate it. He not only did this, but finding that the Kinetoscope had not been patented in England, he made many copies and sold them to amusement places all over the world. Of course, the Edison Company soon became aware of this. As the film, now of celluloid, in use for the machine was patented and made only in the United States, by stopping the sale of the film for use outside this country, the users of these illegitimate machines were left in a sore predicament, and Mr. Paul soon had a clamoring clientele on his hands, owners of expensive machines which they could not use. So frustrated, Paul turned to the production of the film itself. Among Paul's sadly disappointed customers was Charles Pathe of Paris, then running a small amusement place. It is interesting to note that this is the same Pathe who heads the great film company and whose name is a household by-word.

Paul not only succeeded in the manufacture of film but also improved the machine itself, adopting intermittent motion to the

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film and thus obtaining clearer and better presentation. He received, for a time, great recognition and honors for his "inventions," tho these were purloined and not original.

At about the same time that Paul received a Kinetoscope in London, one was received in Paris by the Lumiere firm, then, as now, one of the foremost manufacturers of photographic products in France. They produced an improved model of the machine and carried the improvements much further than Paul had. The popularity of these so-called "peep-hole" machines was short-lived, however, and by the time the Lumiere machine reached London, Robert Paul had reaped most of the popularity and the glory. In the meantime progress towards the real goal, the intermittent projection machine of the present day, was being made in the United States, in fact comparatively long photographic moving picture films were being projected on screens by this time, 1894 to 1896.

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BIRTH OF THE FINAL FORM

WHILE Robert Paul and others in England, Lumiere in France, Edison in America, were known to be working on moving picture projection machines, a young man, a stenographer in a division of the Treasury Department at Washington, was spending all his spare time at a bench and in the back-yard of his boarding house in mysterious occupation. The results of his labors he shipped to his home in Richmond, Indiana, where he was soon to go on a vacation. Arriving in Richmond he announced to his friends and relatives that the next day he would demonstrate to them the invention which had kept him so busy for two years. The young man was C. Francis Jenkins, and his invention was the first crude model of the present moving picture projection machine and possessed all the essential features of the present day machine. True to his promise, the next day, with electric current borrowed from a trolley wire in the adjoining street, and run thru an improvised transformer, he showed the wonders of his machine to a group of his

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townsmen. The film was of "Annabelle the Dancer," and was hand colored, rather on the overdone side. All this happened on June 6, 1894. Those in the small audience did not know whether they had been tricked, or hypnotized, or just what had happened. They made sure that the real dancer was not there in person; that the machine was real and material; that the wall behind the sheet used for a screen was sound and normal; and so, more bewildered than ever, they left, little realizing that they had witnessed the first exhibition of moving pictures, in every important detail as we know them today. Soon after his return to Washington, Jenkins met, at a school of electricity he was then attending, a fellow student who was interested in animated photography. This was Thomas Armat. To Armat, Jenkins confessed his financial inability to continue his experiments, and they entered into an agreement to continue them together. About ten months after the showing by Jenkins in Richmond, the two put forth a machine supposedly an improvement, digressing in some details from Jenkins' original model and reverting to some of the mechanical features of Edison's Kinetoscope. This

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effort was a failure and altho Jenkins was much discouraged, spurred on by Armat, the two really improved Jenkins' original model and the joint application for a patent on this intermittent machine was made August 28, 1895, and later granted.

Jenkins and Armat exhibited these machines, with films of their own make, at the Cotton States Exposition in Atlanta late in 1895. Despite the efforts of an announcer or "barker," the people would not pay twenty-five cents to see something they had never heard of and did not believe could be. With failure confronting them, Jenkins and Armat decided to invite the doubters in free and ask them to pay the quarter on going out if they thought they received the value. Nine-tenths of them paid and told others and soon it looked as if the show would be a great success, when a fire broke out and the concession, including the machines, burned to the ground. By this time Jenkins was quite discouraged and differences which ended in a multiplicity of law-suits arose between the two partners.

Late in December of 1895, Mr. Jenkins read a paper before the Franklin Institute of Pennsylvania, describing his inventions. At about the same time Mr.

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Armat was showing a model of the machine, somewhat remodeled, to the selling agents of the Edison interests in New York, while Mr. Edison was doing some work on a projecting machine of his own. In the spring of 1896, Jenkins again exhibited his machine, on the Board Walk at Atlantic City, directly opposite an exhibition of the Edison "peep-hole" Kinetoscopes. With the choice of looking at moving pictures individually and by standing up to a small peep-hole, and of sitting down comfortably with others and viewing them on a screen, patrons quite naturally chose the latter, and just as, in the Chicago Exposition, the Kinetoscope had driven the crude Zoopraxiscope of Muybridge to the scrap heap, so here, in Atlantic City, the projection machine of Jenkins caused the scrapping of the peep-hole Kinetoscope. The poor patronage of the Kinetoscopes at Atlantic City brought about negotiations between the Edison selling agents and Armat, with the result that the Edison Company agreed to manufacture and market the machine under the name of the Edison Vitascope-Armat Design. At this time the Jenkins-Armat joint patent had not yet been granted and Armat succeeded in buying Jenkins' in-

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terest in the patent for $2,500,—besides woes, troubles and a medal, all that Jenkins ever received for the invention of the moving picture projection machine of today. And against the award of the medal, the Elliot Cresson Medal of the Franklin Institute, Mr. Armat entered protest claiming that he and not Jenkins was really the inventor of the moving picture machine! After a careful investigation, however, the medal was awarded to Mr. Jenkins.

How the Jenkins-Armat machine came to be called the Edison Vitascope shows a curious working of business psychology. Of course, neither Mr. Edison nor his company has ever claimed that Mr. Edison was the inventor of the machine. Notwithstanding this, the public has often labored under that impression. When the negotiations with Mr. Armat were begun, it was pointed out to Armat by the Edison selling agents that Edison had been working on a projecting machine, that probable users of the projecting machine were waiting patiently for Edison's announcement, that no machine put out under an unknown name would succeed without long delay on account of this waiting for Mr. Edison whose prestige

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commanded respect and tended to depreciate outside efforts in the same direction as he was working. They told Armat that if his machines were to sell widely from the first, they had in some way to be connected with Mr. Edison's name, to keep within the actual truth and at the same time take advantage of Edison prestige—so came about the resulting name of "Edison Vitascope-Armat Design," the machine being manufactured in the Edison shops on a royalty basis.

Altho the Jenkins machine was the first with which an exhibition of the present type was shown, in the two or three years during which this machine was developed and finally marketed as the Edison Vitascope, literally dozens of more or less similar machines were patented in England, France and Germany, all using different sizes of film with various styles of perforations. The great expense and greater inconvenience of being able to use films of one special make only, on any particular machine, however, soon brought about a standardization in size and perforations following the Edison and Jenkins ideas, so that now, film made anywhere by any company may be used on any machine on the market. In this way have

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moving pictures gained a most widespread and almost unlimited audience. As for the machines themselves, later years have merely brought about improvements on the Jenkins model of the early nineties.

From the description of the few essentials in the present day moving picture machine, it will be seen how this machine is merely the gathering and development of principles discovered or invented, some of them quite long ago, by different people. The actual projection system is similar to that of the ordinary magic lantern; a source of light, a condensing lens, and an objective lens. The picture, instead of being on a single glass slide, is repeated many times on a long flexible ribbon of film, perforated on each edge. This film runs off of one reel onto another, but does not move continuously. By means of sprocket wheels and cams engaging the perforations in the edges, the film is moved about 3/4 of an inch, the length of one picture, and stops for an instant, then moves another step and so on. At the objective lens is a revolving shutter with several openings in it. As a film picture stops before the lens, an opening of the shutter stops at the lens also, the light shines thru and the picture is projected on the screen.

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When the film is moving, the shutter obstructs the light and the screen is dark. This intermittent showing of picture and darkening of screen takes places from sixteen to twenty times a *second*. Each picture shows a slightly different phase of motion or position, and persistence of vision bridges over the dark periods and blends the pictures. The taking apparatus is essentially no different from the projector. The condenser and source of light are of course unnecessary. The objective lens makes a series of negatives on the strip of film; by light, strips of positives are printed from this negative. These positives are the films used for exhibition. When the perforations in the film become worn, when the moving parts of the projecting machine work with a great deal of play on account of wear or looseness, or when the whole apparatus is unsteady and vibrates, the picture on the screen shows with that unpleasant "flicker" which is so trying to the eyes. Of course all these defects may be present in the taking apparatus or camera and then it cannot be remedied in presentation. The effect of exaggerated unsteadiness of apparatus is well shown in pictures taken from the plat-

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form of a train or from a moving automobile.

With the perfected machine both for taking and projecting, began the rapid development in the making of the pictures themselves.

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THE PICTURE AND THE STUDIO

CURIOUS as it may seem, altho the first pictures used to obtain the illusion of motion were drawings illustrating the successive phases of motion, and but a short step removed from the animated cartoon of today, the animated cartoon did not appear in its present form until 1910 and was developed from the trick pictures showing inanimate objects apparently imbued with life, rather than from the old drawings showing successive phases of motion. A piece of furniture could easily be shown moving about a room by being photographed in different positions in the room and then showing these photographs in rapid succession. A picture of this sort showing the furniture of a room apparently walking out and down the street into another house and to the proper places in the new room, so impressed the writer that no trick picture since then, about twelve years ago, has given him such a thrill. From these trick pictures it was easy to see that the objects might be drawn in the different positions and

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then photographed with the same results. From this reversion to original practice, combined with photography, was born the animated cartoon. At first a complete picture was drawn for each phase of motion and several months were required to make the many thousands of drawings necessary for the film needed to give a few minutes entertainment. Now the process has been much abridged and by the use of prints, or better yet transparencies of the background or other parts of the drawings in which there is no motion, in combination with drawings of the objects which do move, the time and effort needed to produce an animated cartoon is but a small fraction of what it was.

Curiously enough again, before the present-day projection machine was developed and before moving pictures as we know them today were known, a *picture play* and close relative of the feature picture or screen drama, was presented in New York. More than twenty-five years ago, October 10, 1894 to be exact, Mr. Alexander Black presented his little play, "Miss Jerry," by means of the stereoptican. Mr. Black read the play in a darkened hall while on the screen were thrown more than three hundred photographs

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taken from life, from the actual presentation of the play. As the more than three hundred photographs were shown in less than two hours, the illusion of motion and life in the characters might be experienced by those in the audience with a little imagination, yet the fundamental idea of moving pictures seemed entirely absent in Mr. Black's performance. It was many years however, before Mr. Black's idea of presenting a drama by means of pictures was used in moving pictures altho it seems as if the ideas should have been combined from the very first.

The first pictures to be widely shown were outdoor scenes and their titles, such as "The Buffalo Horse Market," "Feeding the Doves," "The Black Diamond Express," amply describe them. Soon came travel pictures taken from the back platform of a train or from the rear of a vehicle. Comedies also made an early appearance—a favorite early one showed a man sneezing violently, discovering the small boy who caused all the trouble by scattering pepper, and roundly spanking the boy in punishment. A little later came "The Great Train Robbery," the first long film, 800 feet as compared to 200 or 300 feet of the earlier films. This was

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made about seventeen years ago and the incredible announcement was made that the production cost several hundred dollars, four hundred, I believe! Now million dollar pictures are almost a weekly occurrence!

The first studio for the making of motion pictures was the great oudoors. The Edison Company built the first sheltered studio for the making of motion pictures. It was pivoted at one end, with the other end on a circular track so that it might easily be swung toward the sun. The roof could be opened to the sky. Being covered with black tar-paper, it was named "Black Maria." This was about 1905. With the advent of artificial light of sufficient actinic power, such as furnished by the Cooper-Hewitt lamp, came the rapid development of the present day studios and the more elaborate pictures which could be made in them, altho practically all of the elaborate pictures have parts staged outdoors. News pictures have held an important place from the earliest days of the industry. The very early films depicting fire department runs altho intended only to show great activity and the wonders of the motion picture, may be

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considered as forerunners of the news pictures.

The development in the pictures themselves has been an exceedingly rapid one and almost every day brings forth something new. The tendency seems to be towards elaboration and magnification of setting. Co-operation with authors has brought about the use of really worth while material for picture presentation. The attitude of the acting profession towards acting for the motion picture has changed entirely in the last few years. In the beginning no actor of any standing would act for the camera. It was considered beneath the profession. Gradually there have developed extremely able players who act for the screen only. More recently the ablest workers of the legitimate stage have turned to work before the camera, some indeed forsaking the legitimate stage for long periods of time. What was considered a condescension is now considered a privilege; for the film makes a permanent record, of increasing value as the years go by. We can only measure the probable value of John Barrymore's film version of Dr. Jekyll twenty-five years from now, by what we would give to see now, a film version of, say, Ed-

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win Booth's Hamlet. What a pleasure it would be to have preserved for us in film form, Bernhardt, or Clara Morris, or Mary Anderson at their best!

It is quite a jump from "The Great Train Robbery" to "Broken Blossoms" or to "Dr. Jekyll and Mr. Hyde," but in years it is only a little over a decade! Great credit is due for the development in the directing of picture making and presentation to David W. Griffith. Many of the details which have lifted motion pictures out of the commonplace are due to Mr. Griffith's genius. The "close-up" where the face is gradually increased in size until it occupies the whole screen; the "fade-away;" and the "cut-back," jumping back to a related scene in some other period of time or other environment, so effectively used in "Intolerance," were all Griffith's inventions. It is such details, and such possibilities as the transformations in "Dr. Jekyll and Mr. Hyde" that will create for the motion picture a realm of its own far greater than its place as a cheap and popular substitute for the spoken drama.

Two ideas in motion pictures have as yet not been touched upon in this story: One, the combination of the phonograph

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and the motion picture; and the other, the production of motion pictures in natural colors without hand tinting of film. The thought of combining the motion picture and the phonograph is what first brought Muybridge and Edison together. At that time both Muybridge's Zoopraxiscope and Edison's phonograph were in too crude a form to warrant extensive experiments looking towards their combination. But the idea seems always to have remained in Mr. Edison's mind and to have prompted all his experiments with motion picture apparatus. The idea was developed by Edison to the point where it was used in many theatres a few years ago, but the synchronization of the two instruments was not dependable and at times so bad that the combination fell into disfavor and gradually disappeared from public exhibition. The color idea has been brought much nearer perfection and is now much in vogue. The presentation in color depends on the same principle as color printing, the superposition of two or more primary-colored images combining to produce an image similar in color to the original, and need not be technically explained here. At first Friese-Greene of England, who was as we remember re-

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sponsible for one of the earliest projection machines, experimented with two colors, but with little success; later Gaumont of Paris worked with three colors and produced the Kinemacolor process, a partial success; this was later succeeded by the Prizma process using four colors. Briefly, the scheme is the taking of the picture on color-sensitive film through transparent light filters of the different colors, fitted to the revolving shutter, and projecting the film through a machine whose shutter is fitted with transparent screens or light filters of colors similar to those of the taking shutter. A complete description would involve details of which an understanding would necessitate a knowledge of the theory of color and of optics. The Prizma process is successful within its limitations, the principal ones of which are the limited gamut of colors faithfully reproduced, the tendency for the colors to break up into the original primaries when rapidly moving objects are photographed, and the increased footage of film necessary to provide the multiple images for the different colors.

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THE PLACE FOR SHOWING THE PICTURES

IN this country, at least, the first places for the exhibition of moving pictures were tents, stores and legitimate theatres, the most popular for several years being the store shows. At first the stores were merely darkened, a screen put up at one end, a booth improvised at the other, chairs placed on the floor, and all was ready for business. Usually the front was remodeled so as to provide separate exit and entrance, with a ticket selling booth between. The price of admission was usually five cents, and the places soon acquired the name of "nickelodeon." With the advent of longer reels and feature pictures, the price more commonly became ten cents. The owner of one of these store shows, Thomas S. Tally of Los Angeles, is credited with the coining of the name "moving picture" now so generally used. In 1897 Mr. Tally who was showing pictures in the rear of his phonograph shop put up a sign stating that inside could be seen "moving pictures from life," the first known use of the term. It is interesting to note that the name was

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born in the city which was destined to become the center of the motion picture industry, which in less than a quarter of century reached fifth place in the industries of the United States. Store shows became exceedingly popular and soon there were many hundreds of them in all the larger towns. One of the earliest store shows in New York was operated by William A. Brady, well known theatrical producer, and father of Alice Brady the popular star. The store shows soon developed into the more elaborate places either specially built or extensively remodelled for the purpose. The seating capacity of these places was rarely over 300 and the price of admission hardly ever over ten cents. The high tide of store shows was about 1910 and it was about that year when large theatres specially designed for the showing of moving pictures were first being built. All during the time of the development of the motion picture theatre, however, films were commonly used as the closing act in vaudeville houses and also occasionally shown in regular theatres.

In the early days of motion pictures people were reluctant to pay the admission price, they were skeptical and wary.

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It seemed for a while as if moving pictures as an independent means of entertainment were of no moment. The presentation of moving pictures had to be made a part or a factor of some bigger entertainment. One of the most novel of these entertainments involving the moving picture was "Hale's Tours of the World." Mr. George C. Hale, the originator of the "Tours" was chief of the Kansas City Fire Department for many years and many of the quick hitching and fire fighting devices commonly used are of his invention. Mr. Hale had a keen sense of the unusual and the spectacular. In 1904 at the Louisiana Purchase Exposition at St. Louis, he first exhibited the "Tours." Spectators entered an observation car the end of which was replaced by a screen. When they were all seated a conductor came through, collected the tickets and gave the usual going signal. Immediately an engine whistle sounded, the car rocked and seemed to be part of a rapidly moving train—all done by cleverly devised rockers and brakes, of course—while at the front end of the car unfolded a panorama of Scotland, of the Rockies or of any other appropriate place, moving pictures taken from the observation plat-

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form of a moving train. The illusion was bewildering and the entertainment proved exceedingly popular and spread to all parts of the world. It was not very long, however, until moving pictures proved themselves worthy as independent entertainment, without spectacular frills or accompaniments.

From the complete success of the store show, the development of the moving picture theatre is a rapid one. From the days of the large "nickleodeon" with 300 seats to the new Capitol Theatre of New York with 5,000 seats is but a matter of ten or twelve years. About the same span of years sees the advance in admission price from ten cents to as much as $1.50 in some of the new theatres. Even the latest theatres, altho far in advance of their immediate predecessors, are still too reminiscent of the regular theatre, and the ideal building, frankly and obviously arranged for the exhibition of moving pictures is still to be designed and built.

We must not overlook the development of the portable motion-picture machine for the home. In a few years these home machines will probably be as common as the phonograph is today. More serious amateur photographers will use them and

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make film for home use. Nearly every home will have its own machine and will have, not only record films of events dear to the members of the family,—children at play, weddings, anniversaries, parties, —but will be able to rent, for home use, a great variety of films, educational and entertaining, from exchanges established for the purpose. When that day comes, the small neighborhood theatre is doomed; it will be crowded out of existence just as the "store show" was crowded out by the more pretentious theatre of today. Only it will be forced out from both sides, the home machine on the one side, and the very large theatre on the other.

Screens for the showing of the projected image have been much improved. There is now much less, in some cases, no distortion. The illumination is much better than it was, the strain on the eyes is less altho this depends on other factors besides the screen. There is every evidence that soon a satisfactory daylight screen which will not require darkening of the auditorium will be made, a partially successful form of this being already on the market. When the perfect daylight screen comes it will obviously revolutionize the exhibition of moving pictures

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and vitally affect the character of the buildings where they are shown. It is possible, then, that before we reach the ideal in an exhibition place for films under present conditions, we shall have to change the entire basis of this ideal; so rapidly does the development of the moving picture proceed.

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IN considering thoughts for the future and the story of the past, the reader must not forget that the motion picture, like the village which becomes a city in less than a decade, is suffering from extreme rawness and intense growing pains. Just as there has not yet been developed the proper place for the showing of motion pictures, there has not as yet —except in rare instances, in trick pictures and in fiction such as "Dr. Jekyll and Mr. Hyde"—been found just the right material for which the motion picture may be a medium of expression. We may be living through the tremendous event of the birth of a new art, for the stage play can not furnish this material satisfactorily. I believe that more and more we are beginning to realize that the stage play charms in proportion to its power as a stimulant

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for the imagination, in proportion to its suggestion rather than realism; can we compare, for instance, the naive suggestion of the settings in "The Yellow Jacket" with the highly realistic Hawaiian settings of "The Bird of Paradise?" But one of the most valued qualities of the motion picture is the possibility of lending intense realism to the seemingly impossible, the fabulous, even the supernatural. It seems lamentable to attempt application of the same technique to vastly different processes. One cannot make engravings with a brush. Some day the new art will be born and we shall have real motion pictures, not substitutes for and imitations of stage successes, but things that cannot be done well on the stage and are perfectly easy on the screen. We have had faint signs of it already. The day can be hastened by intelligent appreciation and preferred patronage of those pictures which show the right tendencies, for the character of the motion picture will always turn in the direction which promises an increased revenue for the producer and the exhibitor.

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